

To:  
Office of the Secretary  
FEDERAL COMMUNICATIONS COMMISSION  
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APR 29 1991

April 24, 1991

In the matter of: Petition RM-7681

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

To: The Commission

I have recently learned that petition "RM-7681" has been filed by Robert C. Rogers N8FAU, Donald LaBrenz II WB8I, and George Schemm N8JAT. The petitioners claim that experimental work conducted under an STA first granted by the FCC in June, 1987 has proven that HF packet radio is a viable networking mode. The petitioners request that special sub-bands be authorized for use by radio amateur HF packet stations. The petitioners further request that HF packet stations be exempted from "third-party" traffic restrictions in FCC Part 97.80.

This radio amateur disagrees with some aspects of this petition for the following reasons:

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1. The petition claims that HF Packet Radio is a proven networking mode:

This is in fact the same claim made by the American Radio Relay League in their petition RM-7248. As discussed in many responses to RM7248, HF packet radio as it existed in 1990 and as it exists at this date in 1991 has many technical problems that limit its effectiveness. I refer the commission to my response to RM-7248, filed on March 5, 1990 for full details.

In brief, HF Packet radio still suffers from a poor choice of modulation and modem parameters. Simple incoherent FSK modulation using 200 Hz shift for 300 baud data does not work well on frequencies below 50 MHz ("HF"). The resulting transmitted signal occupies an interference bandwidth of approximately 2000 Hz, a grossly inefficient use of our already crowded HF spectrum. The AX.25 packet protocol works well for "benign" environments such as VHF radio and wire-line, but is poorly suited for the "hostile" HF propagation media. Several new approaches to the modulation and protocol problems are actively being pursued - "Cloverleaf" by U.S. radio amateur W7GHM and "PACTOR" by German amateurs DL6MAA and DF4KV are two outstanding examples. HF packet is therefore still an "experimental" mode, deserving of our full support, but not sufficiently mature to warrant special legislation beyond recognition. In particular, it would be a serious mistake to fix amateur FCC technical requirements to those currently used by present HF Packet Radio stations.

2. The petition requests special frequency sub-bands.

The petitioners have requested the following sub-bands:

3.590 to 3.615 MHz  
7.075 to 7.100 MHz  
10.140 to 10.150 MHz  
14.090 to 14.115 MHz  
21.075 to 21.100 MHz  
28.090 to 28.115 MHz

These are quite sizable portions of our existing amateur HF bands. As noted by the ARRL in their petition RM-7248, an HF packet signal has a transmitted bandwidth of approximately 2 kHz - very close to that of a SSB voice station. All of the requested sub-bands are within frequency ranges traditionally

Finally, I must state that I strongly disagree with the whole concept of setting-aside special frequency sub-bands for special interest groups, especially for a group that insists on using a wide-bandwidth and inefficient modulation format. It is much more appropriate that an "experimental mode" be permitted only on a "non-interference" basis to the primary users of a frequency band. Given the poor performance and high interference level of present-day HF packet radio, a strong argument may be made for less rather than greater frequency allocation for the mode. Modem and modulation techniques exist that are efficient and will work. Expansion of frequency availability for 300 baud FSK HF packet will only discourage experimentation and encourage further interference.

U.S. amateurs have for years been self-regulating and our "gentlemen's agreements" concerning frequencies used by differing modes have worked well. Amateurs do not need or want "channelization" or sub-band partitioning of our already crowded frequency bands. It particularly makes no sense to request that the FCC set-up special bands for an automated and bandwidth inefficient mode.

3. The petition requests exemption from third-party traffic regulations for HF Packet Radio:

I must assume that the unsaid concern on the part of the petitioners is in regard to automatic relay of messages or traffic that might be otherwise deemed "illegal". A popular sentiment is that only the originating station should be responsible for the contents of traffic entered into the "system". However, this concept has been shown to be at fault - improper messages can be and are entered.

I suggest that this concept be extended by one station - place message content responsibility on BOTH the originating station AND the first "network entry" station. Require the "network entry" station to hold and screen all new messages entered into his station "mailbox". Once the message is screened and accepted by the "network entry" station, it may be digitally tagged as "accepted" and then proceed through other stations in the network to its destination without further screening. Each message should carry in its header the amateur call sign of both the originating and "network entry station". In the event of entry of an inappropriate message, BOTH stations should share equal responsibility. I suggest that the "third-party" traffic restriction cannot be removed and that originating stations and "network entry" stations must understand which messages are acceptable and which are not.




However, the commission (FCC) must also provide clear guidance to radio amateurs concerning which messages are "acceptable" and

which are not. For example, are "@USA" general information messages acceptable or are they "broadcasts" which are generally not acceptable? What ARE the rules regarding "FOR SALE" messages? Amateurs have had as many different rulings on this point as there are FCC field offices. We need clear and unambiguous guidelines before we can effectively self-police our operations. To date, varying opinions by FCC offices have only compounded the problem, not clarified it.

#### SUMMARY:

It is this amateur's opinion that Petition RM-7681 has merit and that the time has come to end the "HF Packet STA" first granted in June, 1987. The mode has problems and in many aspects is still "experimental". However, it is also in heavy use and an effective nation-wide data communications network has been established using HF packet radio. Radio amateurs should be encouraged to continue improvements of this mode. However, I see no justification for the establishment of special frequency sub-bands solely for the use of HF packet radio. I also do not agree with total exemption from "third-party traffic" regulation. I therefore suggest that RM-7681 be adopted, but with the following modifications:

1. That "HF Packet Radio" be accepted as a legal HF data mode.
2. That AX.25 be a recommended protocol for HF packet radio but NOT the only data format or protocol that may be used.

3. That modulation and modem parameters NOT be specifically designated for HF packet radio. In particular, 300 baud FSK modulation should NOT be encouraged.
  4. That current HF data transmission limits of 300 baud and FSK shifts up to 1000 Hz remain but that other "equivalent bandwidth" modulation forms be permitted. The new forms
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